DISDROMETER RAIN DROP STATISTICS FOR DARWIN AND THE SOUTHERN GREAT PLAINS SITE

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ABSTRACT

The ARM Program purchased two impact disdrometers late in 2005 to provide surface measurements of rain drop size distribution. The first was deployed at the Tropical Western Pacific Darwin site where data collection began February 3rd of 2006. The second was deployed at the Southern Great Plains (SGP) Central Facility; data collection started April 10th of 2006. Rain from a number of convective and stratiform events has been observed and the drop size spectra have been analyzed to determine the range in mean drop diameter as well as its median and mode. N naught and lambda, parameters from a Marshall-Palmer fit to the number density spectra, were tracked as well. A comparison was made between the pre- and post- dead time corrected values for mean drop diameter, Naught and lambda. The correction is often made to remove a large drop bias due to hysteresis in the movement of the disdrometer sensor plunger. The rain drop spectra can be used to calculate radar reflectivity and mean Doppler velocity. The Darwin results have been compared to the observed MMCR (35GHz) reflectivities, while in the SGP case the calculated reflectivities were compared to both WACR (95GHz) and MMCR data.